

HUMAN EVOLUTION-WE HUMANS, EVOLVED?

By: - sanjay L (sanjayraoscientist02@gmail.com)

ABSTRACT

This is a basic introduction to the human evolution to make people realize the specialty of our species. Also to put forth the challenges faced by our species both in the past as well as in the future.

In this project, the author is mentored and supported by Miguel Angel Queiruga and research work done by sanjay L (sanjay lakshminarayana). The research took about eight months to collect invaluable data and the experience has been splendid. It's an eye opener if I can imagine how I used to see that world before to now I have lot of respect and proud feeling about our species and fore fathers who laid the basic foundation for our species to get to where we are.

Thank you,



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ABOUT THE AUTHOR

Sanjay lakshminarayana (sanjay L) is an aspiring scientist ,a amateur astronomer and a cosmologist known for his lectures on physics – feyn lab lectures, designed to contribute to the field of science and technology making it simple for the young inquisitive minds

Sanjay, originally from Bangalore, was born on the 28th of June 1994 and since age of 7 his focused vision has been to look into the cosmos for answers which will revolutionize the way we look at the world. His expertise is in modern physics exploring quantum physics and relativity. He has been a volunteer at the local planetarium, in his pursuit to indulge in exploratory activities most of his time in a year.

Sanjay's lecture series "feynlab lectures" named after his role model prof.feynman is watched over 55 countries around the world introducing people to world of physics. Sanjay is trying to solve the puzzles of grand unification theory, integrating Quantum physics and relativity in line with Einstein's endeavor.

INTRODUCTION

Humans, homosapiens, if I may refer are primates of family and the only extant species of genus homo, * that signature trait in the genes of human beings. The bi pedal locomotion distinguishes us from rest of the primates.

In general, the ability to behave civilized and a mature, highly developed brain capable of making complex calculations sets us Apart from everything else in turn making us "special".

Present " humans" are evolved form of its closest relatives chimpanzee (referred to as chimps from now on), some million years ago evolved into australopithecines and eventually "homo genus".

i" And a big question are we civilized enough, a social being?"

The first life would have started in total darkness at the bottom of the ocean. They would have survived on the nutrient rich volcanic vents (first adaption). They would have evolved enough to absorb nutrients from sea bed and survive for long in the absence of sunlight. Their bodies had to slim in order to survive the crushing pressures in the deep seas.

It was 650 million years ago that the first life begun the evidence can be still found in shores of Canada , charnia which is a frond like ediacaran life form with segmented ridges branching alternately to right and to the left from a zigzag medial structure.

These microscopic single celled organisms or first species existed in the condition with dark and no food. The earth s cycle of day and night was just 12 hours (references) and the atmosphere was filled with toxic gases from the volcanic vents.

However in the oceans the same volcanic vent created the ideal condition for the life to thrive acting as a fertilizer by releasing nutrients and minerals into the waters.

The sponges appeared about two million years ago, quite recent compared to the first time since life existed.. The ability of these species to group the cells and form multi cell structures was the next step in the evolution process.

Now with the shift in plates in the earth crust somehow the land that was under water rose up and life got exposed to the atmosphere and sunlight.

But it was not easy, initially they had to survive the crushing pressures of water in the depths of the ocean and now the ice during the ice age, cells were crushed underneath mammoth glaciers but as always life struggled in its journey to survive. The earth was covered with snow often referred to as "snow ball earth" as ice was all over the earth surface.

From the ice age the evolved life were called "extremeophiles" (which also survived extreme conditions) and then with the environmental change, green house effect melted the heavy blocks of ice.

Later slowly the glaciers began to melt this water rich in minerals were deposited into the ocean which contained life but this acted as a fertilizer to the life helping life evolve and grow into many thousands of species.

The Ciano-bacteria in the ocean had produced immense amounts of oxygen which made life to team all over the water. With time they evolved to live in land.

About 65 million years ago the dinosaurs ruled this planet which gave birth through the eggs and hence with time mammals (give birth to young ones directly) evolved out of them and hence a first of many homo genus species.

Now recapturing a quick snap shot of the journey of “human evolution” humans are evolved from chimps - the anatomy is quite similar, the limbs and the face of humans are quite similar to the chimps but a more symmetric compared to chimps. The DNA confirms the above claim. This means that we are closest relatives to chimps than any other apes

The member of genus homo evolved from a member of an earlier genus called Australopithecus, they include lower jaw, part of upper jaw and a part of lower leg.

According to the evidence, we (modern human) arrived about the 150,000 years ago and believed to have evolved somewhere in Africa where most of the ‘homo’ genus fossils are found.

[P.T.O]

THE FIRST HUMANS,

The earliest members of the human family (early man) called the hominids, they lived in Africa most likely around about 6 – 7 million years ago. The chances are that we walked upright when on the ground but still spent lot of time hanging around in the trees eating leaves and small insects, ants etc.

About 4-2 million years ago, Australopithecus had brain size of around 300 to 500 cubic cm or roughly the same as modern great ape. But not as intelligent as we are, it would be quite interesting to imagine the way they would communicate with each other because as far as my research is concerned there is no evidence of language used to communicate among them.

Another 2 million years ago the tools appear in the record they are not much to look at but they are sharp edged flakes of rock. Yet the appearance marks major advance in evolution.

They signal the beginnings of basic technological thought, as our ancient relatives needed insight to which stones made better tools and how best to knock off cutting flakes. Having tools to cut the meat from the animal flesh meant it was easy to survive as they could hunt and also build simple shelter with remnants of animals.

Later till about 1.2 million years ago, homohabilis a more advance species of homo genus with a slightly bigger brain than the African hominids, they were capable of making better stone tools ensured the survival and defending from predators.

HUMANS ON THE MOVE FOR FIRST TIME,

Almost 2 million years ago, hominids set out from the Africa and started moving towards Asia. One of the east Asian species "homo erectus" which had survived for a long time well over 1.5 million years were already present which marked the first meet of different settlements or first cross continental meet!

The homo erectus's fossils have been found in south east Asia. They are known to have survived the longest period. About 93000 years ago, we the Homo sapiens, an evolved and mature species arrived. By now we knew how to hunt, design tools, innovate, migrate and evolve. By now we had occupied all across Europe and Asia with most of Africa already being occupied. I wish I was there to witness the first meet of humans from two different settlements, I bet it would be pretty exciting as the level of communication was very low let alone the social character!

Now, we face a huge obstacle along the journey of evolution which could have threatened the very existence of our species.

SURVIVING THE ICE AGE,

As early as 15000 years ago, winters were harsh but ahha! We had developed a clever way to cope with the cold and survived winter. The residents of Eastern Europe Sewed clothes from animal hides and built sturdy shelters from mammoth bones. When food was abundant we learned to bury them in permafrost's-an ancient method of deep freezing food.

So our brain was enough developed to think about the future*. By the time this ice age rolled around, evolution had already come up with giant mammals that had survived the cold with fur/hairs covered all over their body called "mega fauna".

Despite not being huge and hairy we braved it. For the first time we were inventive, they realized the fur of animals can be used as warm clothes to protect from cold. And animal fat could be used as a fuel for fire hurray.

I bet the discovery channel survival expert bear grills whom I follow quite closely would have had a time of his life meeting these people and learning their survival techniques (no disrespects to him).

After the ice age, we began thriving exponentially and continued till today unless educated about population explosion it will continue far into the uncertain future. However out of many homo genus's we were the only species to have survived. Yet in short time of our existence we populated the globe, found ways to communicate with creative expressions and sophisticated tools helped modern humans have an edge over survival over other hominids.

As of today our closest species have died out .hence we are the only surviving hominids a complex mixture of all the species of hominids. Compared to other hominids our skeleton system, brain, ability to walk on our feet for most part of our life (of course the baby crawls until its legs are strong enough to support its weight) and ability to work, build complex machines sets us apart.

SENSE OF THE WORLD,

Today we are advance in our scientific development that we dream and perform calculations on objects at the corners of this universe.

The first explorers went on a voyage around the world and discovered that earth is round before which earth was thought to be flat and people were scared of crossing the horizon but we as

of today have made it into space and also to the moon which is the only natural satellite of earth. We have made those journeys out of bravery and intentions for a better and advanced tomorrow.

Charles Darwin, the father of evolution went on a voyage around the world and concluded 'survival of fittest' after visiting islands teeming with life. The statement stands out and will stand out throughout the history of mankind.

Our ability to visualize things (imagination) and dream is very significant. (Being an aspiring scientist I can dream of galaxy on the corners of the universe as I write). The Drawings found on the rocks carved indicates this great capability of our species from times around 25000 years ago.

As of today, 7.08 billion people inhabit the earth with almost every island discovered on earth, highest mountain peaks conquered and various locations navigated using sophisticated technology (GPS). We are on top of food chain while we consume and control everything else (in spite nature hits back at us few times) we call ourselves "social beings" we can talk with each other with languages that vary regionally and with an average life expectancy of 70 years and 1.2 % annual growth in population we are actually reframing the nature and environment that created us.

Hence this planet of ours is teeming with life, human life. We humans are all but evolved more than any other species. We have learned to protect ourselves from our own species and we are mature enough to study our brain which controls what we are and who we become.

CONCLUSIONS AND FUTURE:-

On this day, I think we all agree we are slaves of technology created by the greatest of the minds of our own species. We have had great people who came so close to nature that they started a new branch called science which is the frontier of all our innovations, finances and growth (which not many realize).

We have put “man on moon” and sent probes to the edges of solar system even sent our DNA codes to the edges of galaxy hoping that there is an extra terrestrial life similar to that of us.

I’d say yes we are evolving but not as a species not anymore but our technology is evolving and we are moving forward with it.

Micro chips that could replace and enhance the brain power in required areas are already being developed and our own greenhouse gas emissions threaten the very existence of our species in the days to come. We kill animals and have continued to do so in an effort to earn money and hence food in a more easier way due to which many species are extinct because of it and deforestation

caused habitual loss which contributes to the above hence still causing it to the present day.

People talk about educating everyone in a belief to reduce deforestation and extinction of other species due to hunting and various other reasons, but it is not the way. Human tendency is to always listen, understand under clam circumstances which requires someone of our own species to talk it out and chances are that one understands the value of it in far less time than it takes for one to be complete formal education which might sometimes trigger deforestation etc.

While I carefully observed my own species of many generations at a time, I can conclude that the recent generation of humans is either more senseless or extraordinary genius's (no disrespects) yet lack sensitivity in rare cases. In one word the present generation is extreme with their characters. While my study says for those born two or three generation earlier are far more sensible, social and more humane in character.

Lastly, the new species of humans are unlikely to emerge but the changes which are noticeable will possibly lead our species, wherein every human is of a particular extreme character. And for now we may be social enough to call ourselves 'social' but I m not sure about the future having said that there are more people who are committing themselves to the original thoughts and are very eager , hard working towards making the world a better place. I just don't think that we understand ourselves enough to

Conclude whether we are social or deny. The time will itself decide both our existence and also nature of our character; both of which if not in check we surely have some uncertainty that might be very costly in future.

Thank you,

By:- 

Sanjay L (full name: - SANJAY LAKSHMINARAYANA)

Sanjayraoscientist02@gmail.com

Feynlab, India

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---a paper by sanjay lakshminarayana---
sanjayraoscientist02@gmail.com

thank you very much